

## ABSTRACT OF THE DISCLOSURE

[0054] Transmit based axial whitening is provided. Ultrasonic waveforms to be transmitted are designed to provide for wideband imaging characteristics prior to detection. Rather than transmitting a waveform having a spectral magnitude as white or flat as possible, waveforms with adjusted spectral content, such as spectrally bi-modal waveforms are generated in order to compensate for subsequent effects. . Prior to detection, a more wideband or whiter signal response is provided in response to the transmitted waveform. Any of various alterations of the transmit waveform, such as asymmetric, spectrally bi-modal or other characteristics in anticipation of a system transfer function or physical phenomena through which the signal passes electronically or acoustically to result in a wideband or white spectral magnitude and generally linear spectral phase is used. The transmit waveform is altered to improve the imaging characteristics of the downstream processing.